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Malaria?

Vol. 1 No.12

Malaria Control, Hq ASCOM, APO 358

25 Nov. 1944

Well, here we are in the Philippines -- please note our new address. It's "old home week" up here - lots of old friends - many malaria units having started work previous to our arrival. Several of the units that landed early suffered minor casualties and Purple Hearts have been awarded.

Those units scheduled for a move had better brush up on their "shootin' irons", as they'll surely need them.

The following article is quoted from the monthly report of the 9th MCU:

"The Unit in the past two months have been supplying the natives with ourlap, requisitioned from the Engineers in 1000 yard rolls to use as a lap lap and back cover when spraying. We find this protect the natives from having sores on their back and legs from contact with oil. It also saves their lap lap from becoming soaked in oil and we find they are more willing in their work."

The Army Motion Picture Service, in their issue #38, 1944 of the Secreen Magazine offers a new anti-malaria short entitled "Target Snafu".

Our friend, Snafu, in typical fashion, ignores the proper precautions against malaria and winds up, as per usual, flat on his back. We see squadrons of germ carrying mosquitos going through all the basic preliminaries and advanced training before "winning their wings".

Watch for its' arrival at your base.

#### "Unit CO's"

Control and Survey Units primary function is mosquito control, however, they may be called upon to assist with other serious sanitation problems. Fly and rodent control are common examples of such work. It is advisable to explain to your enlisted men the necessity for cheerful cooperation in such cases; to warrant the continued existence of your units.

Quoted from the October monthly report of the 37th MCU is the following paragraph of their results with DDT:

"All larviciding is being done with flit guns and an 8% solution of DDT in diesel oil. The 8% concentration of DDT has been used during the past month and it has been observed that a more satisfactory kill is obtained with this dosage then with the former 5% concentration. Considerable breeding was found in several areas where the 5% concentration was being used, indicating that this dosage was not entirely effective for all field conditions."

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THE SURGEON GENERALEC Date 9 Sep 52  
G. Craft, Capt, MDC  
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Captured German Document on Malaria Prophylaxis  
and Treatment.

Dated 26 June 1944.

1. Preventive treatment of malaria:

(1) Preventive treatment is carried out without exception in all units operating on, or south of the following line. The line includes the coast of the Mediterranean from the Spanish frontier to the area of the Rhone delta south of Montpellier, Nimes, Avignon, to Toulon. It then follows the Mediterranean coast to Mentone from where it pursues the ridge of the Alps to Graz, whence it follows the river Mur, Drau, and Danube to the Iron Gate. It then runs along the ridge of the southern and eastern Carpathians to the height of Cernowitz from where it passes through Kiew to Kasan.

The chief of the Army Medical Corps - upon well-founded suggestions - maintains the right to permit abstention from this rule in specified areas.

(2) Protective treatment commences on 1 April of each year and terminates on the 31 October. North of the aforementioned line preventive treatment is generally not necessary. In special cases the Army Corps physician may decide after deliberation, and in conformity with the chief medical officer of the navy and Luftwaffe.

(3) Protective treatment consists of the daily administration of 1 tablet (0.06 Gms) of Atebrine with plenty of fluids after meals. Variations of this dosage are prohibited.

Troops stationed in highly malarious areas who, despite daily administration of 0.06 Gms Atebrine, have casualties from malaria should insert an antimalaria course according to II, 1 between protective treatment. After conclusion of the course protective treatment with 0.06 Gms Atebrine should be resumed. Orders to this effect are given by the responsible Army Medical Officer (Chief Medical Officer of the Navy or Luftwaffe).

(4) Terminal treatment is carried out uniformly for the entire Army beginning 1 November with Atebrine and if possible with "Plasmochin simpl." It should follow immediately after the last day of the Atebrine protective treatment. Dosage: 1 Tablet Atebrine 0.1 Gm, 3 times daily for seven days followed by 1 Tablet Plasmochin simpl. 0.01 Gm, 3 times daily for three days, after meals with plenty of fluids.

If Plasmochin is not available the Plasmochin course may be replaced by 3 Atebrine-days, 0.1 Gm, 3 times daily.

(5) Units being transferred out of malarious areas should undergo terminal treatment according to #4. The same applies to soldiers going on leave, transfer etc.

II. Treatment:

(1) As a rule treatment will be carried out as follows: 1 tablet Atebrine 0.1 Gm 3 times daily for seven days followed (without interval) by 1 tablet Plasmochin 0.01 Gm 3 times daily for three days.

If Plasmochin is not available it may be replaced by Atebrine 0.1 Gm 3 times daily for three days.

(2) During the first days of treatment, Atebrine (0.1 three times daily) by mouth may be substituted by one injection 0.3 Gm of Atebrine intramuscularly. As a rule intramuscular treatment is indicated only in the event of malaria tropica. The dissolution of Atebrine tablets for injection purposes is prohibited.



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(3) In hospitals, the following treatment scheme is permissible:

- (a)
- |                            |       |                        |
|----------------------------|-------|------------------------|
|                            | 1 day | 2 tablets Atebrine 0.1 |
| 0.01 Plasmochin            | 2 day | 3 times daily          |
| 3 time daily               | 3 day |                        |
|                            | 4 day | 1 tablet Atebrine 0.1  |
|                            | 5 day | 3 times daily          |
| (total Atebrine -- 2.1 Gm) |       |                        |
- (b) 1 tablet Atebrine 0.1 Gm plus 1 tablet Plasmochin 0.005 Gm.  
3 times daily for 7 days. For this dosage system the usual  
Plasmochin tablet of 0.01 must be divided in two.

(4) The intravenous administration of Atebrine is not permitted since it has no therapeutic value and may cause cramps and damage to the circulatory system.

(5) In the event of a coma the Atebrine dose may be increased from 0.3 Gm daily to 0.9 Gm daily or quinine, up to a total of 1 Gm daily, may be given.

(6) Also permitted in the little known but well established Chino-plasmin-treatment: 1 tablet Chinoplasmin three times daily after meals for 21 days.

(7) The use of Plasmochin in injectable form for the treatment of malaria is not necessary.

(8) Gastro-intestinal spasms which may be encountered may be alleviated efficiently by the administration of 0.2 Gm of powdered camphor.

III. General Regulations:

\* \* \* \* \*

(3) It is not necessary that a soldier who has recovered from malaria, receive a convalescent furlough in every case.

(4) Malarial infection should always be considered a possibility in the event of unclarified febrile conditions. The knowledge of such an infection is of great importance especially in the event of hospital treatment in the homeland. Indications to this effect should be given to all medical officers, medical sergeants, unit physicians, and organizations.

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THE EFFECT OF EPIDEMIC JAUNDICE ON  
PLASMA ATABRINE LEVELS DURING AND AFTER SUPPRESSION

- E X T R A C T -

Tissue atabrine levels were measured on two liver samples from patients dying from acute yellow atrophy of the liver. The amounts of atabrine found were 83 and 144 gamma per gram. These levels are within the range of 40 to 237 gamma per gram which we have found in normal livers from autopsies on accidental deaths.

SUMMARY

Intercurrent liver disease did not influence the suppressive atabrine level or the rate of disappearance of atabrine from the blood after suppression was stopped.

JOHN MAIER  
1st Lt. M. C.

FREDERIK B. BANG  
1st Lt. M. C.

NELSON G. HAIRSTON  
2d Lt. Sn. C.

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DDT Allotment from San Francisco Port

1944

Sept	from 35,000 lbs	--	increase to 150,000 lbs
Oct	" 40,000 lbs	--	" " 140,000 lbs
Nov	" 85,000 lbs	--	" " 220,000 lbs
Dec	" 100,000 lbs	--	" " 250,000 lbs

These allotments even with the increases are not one tenth of the amounts supposedly coming to this theater as indicated in earlier communications. The authorized issue basis for the SFA is now 115 lbs/1000 men/month. The amounts authorized in the recent Quartermaster letter quoted above do not meet the requirements of this allotment.

For this reason stringent supervision is necessary of our supplies of DDT. The use against flies is more important than control of mosquitos because of the diarrhea and dysentery problem in most bases. Since diesel oil has been a satisfactory method of mosquito larvae control in most cases, it is recommended that DDT be used sparingly for control of adults and larvae of mosquitos.

One approved method of use against flies around kitchens and latrines is quoted for your information below:

"DIRECTIONS FOR USE DDT FOR FLY CONTROL"

"1. DDT, dichloro-diphenyl-trichlorethan, is a very effective insecticide against all varieties of flies. The best use of this product can be made around fly breeding areas; latrines, mess halls, kitchens and garbage racks to control adults and larvae of flies.

2. Supplies of these items are controlled because sufficient amounts have not yet reached this theater from the United States. As supplies arrive they will be distributed on priority, first to hospitals and second to other units.

3. Method of preparation:

a. Larvicide, DDT powder may be made up in a five per cent (5%) solution in kerosene or Diesel oil No. 2, by using one half (1/2) pound per gallon of solvent. Slight warming by placing in the sun, and stirring will cause the powder to dissolve more easily.

b. Insecticide, DDT, spray, residual effect (5% DDT in kerosene) is ready to use as it comes from the can.

4. Methods of application in buildings other than latrines:

a. Either of the solutions mentioned above may be painted on screens, woodwork, table legs, benches, and walls by means of an ordinary paint brush; this is the most economical method of applying DDT. The kerosene mixture is inflammable and care must be taken when used near fires. The diesel oil solution will stain all surfaces slightly and should not be used on table tops because of moderate toxicity when dissolved in petroleum products. The dry powder is not toxic except by ingestion.

b. Standard "flit guns" or other fly sprayers can be used to spray walls, table legs, and screens. If this method is used the fluid must not be sprayed freely into the air. Hold the nozzle close to the surface and cover until it is wet, not dripping.

c. The Chemical Warfare decontaminating apparatus 1½ quart and the 3 gallon knapsack type sprayer can be used for spraying. The spray from this apparatus is very coarse and wasteful of DDT when used inside buildings.

Spraying should be done at the rate of one (1) gallon per five hundred (500) square feet, using a 5% solution.



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5. Method of application for latrines: The DDT solution is applied to the inside of the building as in c above. The outside of the latrine box, except the seats, is to be painted as above. Use the DDT as a spray, at the same rate, on the inside of the latrine box and the ground around the outside. Every twenty four (24) hours apply DDT solution to the interior of the latrine box and the ground around the outside at the rate of one (1) pint per three hundred (300) square feet of surface.

6. Special attention is called to the toxicity of DDT in solution. It will be absorbed in oil through the skin, can produce a dermatitis, and may cause necrotic changes in the liver. Great care should be exercised in applying DDT spray, that those using the sprays be so protected that the spray will not come in contact with the eyes or skin and will not be inhaled into the lungs. Any clothing soaked or spotted with an oil solution of DDT should be changed and laundered."

\* ----- \* ----- \* ----- \* ----- \* ----- \* ----- \*

THANKSGIVING  
Malaria Menu

Paris Green Olives  
(Coral pitted)

Paris Green Celery  
(Rotary type)

Freon "Bomb" Cocktail

Mock Turtle Distillate Soup  
Puree of DDT, powder, dissolving

Kunai Salado  
with  
Dimethyphalate dressing

Entrees:\*

French Fried Anophelino  
Culicines on the half shell

Vegetable:

Broiled Sago Palm                      Roasted Coconut Husks  
Sweet & Sour Pom Pom

Dessert:

Road Rut Cobbler  
with 612 sauce

Afterdinner mints:    Atabrine

\* For those patrons on a diet -- Salmon & Bully Beef will also be available -- fresh (off the ship).

Repellant -- isn't it?

\* ----- \* ----- \* ----- \* ----- \* ----- \* ----- \*

CO's of Malaria Units

Let your enlisted men read these Newsletters, they are for us all. Many men say they have not seen the copies in the past.

"Remember this news is classified."



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A Survey of Blood and Intestinal  
Parasites in Natives in Dutch New Guinea.

by

Lt. Robert B. Burrows, Sn. C.  
30th Malaria Survey Unit

1. A survey was made of natives in Baru and Nica compounds in the Sansapor area of Dutch New Guinea. This survey was divided into two sections: (a) Studies on the incidences of malaria and filariasis, done by both the 26th and the 30th Malaria Survey Units; (b) Studies on the incidences of intestinal parasites, done by the 30th Malaria Survey Unit alone. In this paper the data on blood parasites do not include the results obtained by the 26th for two reasons: (a) The data are comparable; (b) The age and sex of those examined by the 26th is not available for a breakdown.

2. The natives of Baru compound had blood smears made between 8 and 10 A.M., whereas smears were made of those in Nica compound between 9 and 11 P.M. As both of these compounds are new and as villagers are often transferred from one to the other, distinct differences are not to be expected. These natives have, for the most part, escaped from the Japs, have wandered down from the hills or been brought from other parts of the Vogelkop Peninsula.

3. The following procedures were used in the course of this survey:

(a) Blood parasites. One slide containing both a thick and a thin smear was made of each native. The slides were all stained with "Giemsa's stain". Each slide was examined by at least two persons, the survey team being composed of the writer and the three laboratory technicians (Sgt. Vernon Lundin, Cpls Joseph H. Mason and Paul McDermott). Thus any possibility of overlooking infections was minimized.

(b) Intestinal parasites. The medical sergeant at the village was responsible for collecting the stool specimens and furnishing the name, age, sex and race of each person. The writer trained the laboratory technicians in examining stool specimens and checked all but 14 himself. Thus each stool was examined by two to four persons. Due to the press of other duties the writer could not examine these 14, but each was checked by the three technicians. After examining fresh smears flotation was carried out. This was discontinued after approximately 45 were done, for in only one case was an additional infection found. When present the infections appeared to be heavy enough to show up in ordinary smears, especially when two or three smears were examined.

4. Table I gives the results of the survey for malaria and filariasis. In the table the dividing line between adults and children was made at 15 years.

TABLE I.

Incidences of Malaria and Microfilaria in Natives.

<u>Baru compound (8 - 10 AM)</u>	<u>Men</u>	<u>Women</u>	<u>Boys</u>	<u>Girls</u>	<u>Total</u>
Number examined	4	25	23	28	80
Microfilaria	25.0	4.0	4.4	0.0	3.8
P. vivax				3.6	1.3
P. malariae			4.4		1.3
P. falciparum			4.4	3.6	2.5
<u>Nica compound (9-11 PM)</u>					
Number examined	161	19	24	19	223
Microfilaria	40.4	10.5	12.5	0.0	31.4
P. vivax			4.2	21.0	2.2
P. falciparum			12.5	5.3	1.8

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5. The table shows some interesting data concerning the presence of Microfilaris. The evening rate was almost ten times that found in the morning, which was the expected difference. However, the evening rate alone brings out some unexpected facts. The incidence in adults (37.2%) was over five times that of children (7.0%) and the incidence in males (36.9%) was seven times that in females (5.3%). Microfilaria were not found in any male under 9 years of age or in any female under 20 years of age. Filariasis appears to be primarily a disease of the sexually mature natives here and it is rare in children.

6. On the other hand, malaria appears to be restricted to children. Not a single case of malaria was found in any person over 9 years of age. And the younger the child the more likely one is to find malaria. Combining the results of the survey of the two villages shows that 6 had P. vivax, 6 had P. falciparum and only one had P. malariae. When analyzed according to age the following results were obtained: (a) of those under 1 year of age 45.5 percent had malaria; (b) of those from 1 to 4 years of age 23.5 percent had malaria positives; of those from 5 to 9 years old 10.3 percent were positive; and of those 10 and over none was positive. The curve showed a definite downward trend from babies in arms to zero at 10 years of age.

7. Apparently the natives show an immunity to malaria, which is developed during childhood. This confirms the work of Van Loon and Kirchner (1924) (see Stitt, vol.I, p.60), who found that a high degree of tolerance or even immunity, existed in the natives of the Netherlands East Indies. It is not stated at what age they ceased finding malaria parasites in the natives' blood. From the present studies the indication is that natives are free of malaria before they become sexually mature.

8. The incidences of intestinal parasites found among the natives are given in Table II.

TABLE II.

Incidences of Intestinal Parasites in Natives.

Number examined

210

Negative	4.8
1 species	17.6
2 "	44.3
3 "	24.8
4 "	5.7
5 "	1.9
6 "	.9
-----	
Average number species per person 2.2	
-----	
Hookworm	84.3
Ascaris	63.3
Trichuris	37.1
Strongyloides	10.0
Endamoeba coli	10.9
Endamoeba histolytica	.5
Endolimax nana	3.3
Chilomastix mesnili	3.8
Trichomonas hominis	4.8
Giardia lamblia	.5
-----	

9. Only a small percentage (4.8%) of the natives were found to be free of intestinal infections. Multiple infections were observed in 77.6 percent. Of every 20 individuals 17 had hookworm, 13 Ascaris, 7 Trichuris, 2 Strongyloides and 2 E. coli. Other infections were less prevalent. Protozoan infections were far less frequent than worm infections, but 18.1 percent had from one to three species of protozoa. Trichomonas infections probably would have been higher had all stool specimens been loose. Only one case of E. histolytica and Giardia were found.



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10. The data were analyzed from the standpoint of age and some interesting facts obtained. They are given in Table III.

TABLE III.

The relation of Age to Incidences of Intestinal Parasites.

Years	Under 1	1 - 4	5 - 9	10 - 19	20 - 29	30 - 39	40 plus
No. examined	4	25	28	33	64	40	16
Negative	100.0	4.0	0.0	0.0	3.1	2.5	12.5
1 species		32.0	14.3	21.2	18.7	12.5	6.3
2 "		40.0	25.0	45.5	48.4	57.5	43.7
3 "		20.0	35.7	24.2	25.0	20.0	31.2
4 "		4.0	17.9	6.1	0.0	7.5	6.3
5 "			7.1	0.0	3.1		
6 "				3.0	1.6		
Aver. no. species	0.0	1.9	2.8	2.3	2.2	2.2	2.1
Hookworm	72.0	89.3	93.9	82.7	92.5	81.3	
Ascaris	84.0	85.7	54.5	57.7	55.0	68.8	
Trichuris	20.0	60.7	42.4	39.0	35.0	18.8	
Strongyloides	4.0	7.1	12.1	7.8	12.5	25.0	
E. coli		17.9	12.1	15.6	10.0		
E. histolytica					2.5		
E. nana		3.6		6.2	2.5	6.3	
Chilomastix	4.0	3.6	3.0	4.7	2.5	6.3	
Trichomonas	4.0	10.7	6.1	1.6	5.0	6.3	
Giardia			3.0				

11. The only group of natives free of intestinal infections was the group of babies in arms, who had not had an opportunity to play in the soil. Shortly after reaching the age at which they could walk around they quickly began acquiring infections. The rapidity with which some picked up infections is shown in the two following cases: a one year old boy with three species and a two year old girl with four.

12. The 5-9 year old group had the highest average number of species per person (2.8), after which the average dropped to a more or less constant 2.2 species. With the exception of the 5-9 year old group each group had the largest number of natives showing two species each. Apparently some infections are lost after a person passes his tenth year, for the average shows a definite decrease.

13. Hookworm infections rapidly climb to a high level and, with certain slight variations, remain high throughout all age groups. Ascaris quickly reaches a peak in the 5-9 year old group, but decreases after that. Trichuris shows a somewhat similar curve. Strongyloides and the various protozoan infections are quite irregular in their distribution according to age. There appears to be a definite correlation of age with the average number of species per person and with the incidences of Ascaris and Trichuris infections.

14. The data next were analyzed from the standpoints of race and sex. Table IV contains this information. Five races of people were present in this camp: Ambonese, Javanese, Papuans, Menadonese and Chinese.

TABLE IV.

The Relation of Race and Sex to Incidences of Intestinal Parasites.

No.	Race				Sex		
	Amb.	Jav.	Pap.	Chin.	Men.	Male	Female
examined	41	26	132	5	6	99	111
Negative	2.4	11.6	3.0	0.0	33.3	4.0	5.4
1 Species	34.2	26.8	12.1	0.0	0.0	17.2	18.0
2 "	36.6	50.0	45.5	80.0	16.7	49.5	39.6
3 "	24.4	11.6	27.3	20.0	33.3	24.2	25.2
4 "	2.4		7.6		16.7	3.0	8.1
5 "			3.0			1.0	2.7
6 "			1.5			1.0	0.9



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TABLE IV (Con't).

	Race					Sex	
	Amb.	Jav.	Pap.	Chin.	Men.	Male	Female
Average no. species	1.7	1.6	2.4	2.2	2.0	2.1	2.2
Hookworm	87.8	53.9	89.7	100.0	66.7	81.8	86.4
Ascaris	58.6	34.7	70.7	60.0	66.7	55.6	70.2
Trichuris	34.2	38.5	37.2	60.0	33.3	40.4	31.2
Strongyloides		3.9	14.4		16.7	8.1	11.7
E. coli	4.9	15.4	12.1		16.7	11.1	10.8
E. histolytica			0.7			1.0	
E. nana		11.6	3.0			5.1	1.8
Chilomastix	2.4		5.3			4.0	3.6
Trichomonas	2.4	3.9	6.1			4.0	5.4
Giardia			0.7			1.0	

15. The following conclusions were drawn concerning the relation of race to incidences: The Javanese and the Ambonese had the lowest average number of species per person (1.6 and 1.7), whereas the Papuans had the highest (2.4). The numbers of Chinese and Menadonese available for examination were so small that the incidences found probably are not reliable. In each race hookworm was the most prevalent infection, Ascaris second and Trichuris third, with the exception of the Javanese in whom Trichuris was more prevalent than Ascaris. There were more protozoan infections in the Javanese (30.9%) and Papuans (27.9%) than in the other three races.

16. The incidences of infection in the two sexes were rather close in most cases. Females showed a larger number (11.7%) harboring four to six species of parasites than did the males (5.0%). Males had higher incidences for Trichuris and all protozoan infections except Trichomonas. However, the differences in incidences between the two sexes were small except in the case of Ascaris.

17. The main conclusions which can be drawn from this survey are:

(a) Filariasis is much more prevalent among natives here than is malaria. However, it appears to be restricted almost entirely to those who have reached puberty.

(b) Malaria has been found only in children and an immunity to it is apparently developed by the time the natives reach 10 years of age.

(c) Only 4.8 percent of the natives were free of intestinal parasites and over one-third of these were less than one year of age. The average number of species per person reached a peak in the 5-9 year old group, then decreased thereafter.

(d) All worm infections, except Strongyloides, were high and continued so throughout life.

(e) The Javanese and Ambonese had the smallest number of infections and the Papuans the largest.

(f) Females had the highest incidences for worm infections and males for protozoan infections.

\* \* \* \* \*

A list of the Malaria Units up here should prove of interest to all.  
To date: 7th, 8th, 11th, 13th, 15th, 55th, 66th, 91st, 92nd, 93rd and 98th Malaria Control Units.

5th, 6th, 28th, 34th, 38th, 205th and 211th Malaria Survey Units.

Malariologists include: Major Minter, Captains McMahan, Coffey, Kirkham, White and Davenport.



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R E S T R I C T E D

HEADQUARTERS  
ADVANCE UNITED STATES ARMY FORCES IN THE FAR EAST GND/bbm

FEGC 413.1

APC 501  
5 November 1944.

SUBJECT: Motor Vehicle Tool Set for Malaria Control Units.

TO : Commanding General, Sixth Army, APC 442.  
Commanding General, Eighth Army, APC 343  
Commanding General, Far East Air Forces, APC 925  
Commanding General, XIV Corps, APC 453  
Commanding General, USASOS, APC 707

1. Notification has been received from the War Department that Tool set, complete with tools, General Mechanics', on the basis of one (1) per utility repairman, will be included in Column FA (Malaria Control Unit), Section II, T/O & E 8-500, Medical Department Service Organization, now undergoing revision.

2. Pending receipt of the War Department change, this letter may be used as authority for requisition of this item upon the basis indicated above.

By command of General MacARTHUR:

C. J. ENGLE,  
Lieut. Colonel, A.G.D.,  
Asst. Adj. Gen.

Copies to:  
G-3, G-4, Surg & AG, USAFFE

NOTE:  
This letter refers to ltr  
FEGC 400.34, 27 Sep 44, subject:  
"Change to T/O & E 8-500" and  
first indorsement thereto by WD,  
dated 25 Oct 44, file AGOB-P-SPMOO  
320.3 (27 Sep 44)

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R E S T R I C T E D

A Certified True Copy:

*G. I. Orth*  
G. I. ORTH  
Lt. Colonel, Med. Corps  
Chief Malariologist

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"A Malariologist Looks at a Latrine"

by

Lt. F. M. Davenport, MC, Malariologist Base G

"The mess halls and latrines of a General Hospital were sprayed with 5% D.D.T. in kerosene, using a power sprayer. The spraying was repeated after a 10 day interval. An evaluation of the results achieved follows: An estimated 95% reduction in the number of flies occurred within a few days and has been maintained. Unfortunately, as with all innovations, unit mess and sanitary officers are inclined to believe that D.D.T. is the answer to the fly problem, rather than a valuable adjunct to fly control. Although D.D.T. will materially reduce the adult fly population, the field trials so far emphasize the importance of the prevention of fly breeding by proper garbage disposal and latrine sanitation. It would seem that the proper role of DDT in fly control is that of an agent more effective than hand killing, fly paper, or pyrethrum spray, to reduce or in favorable circumstances to eliminate those flies which penetrate the 'main line of resistance' which in the final analysis is the prevention of fly breeding. The fecundity of the common house and latrine fly is such that any attack directed against the adult stage alone is doomed to failure. It should be emphasized that a fly which has bred in a latrine, crawls on the food in the kitchen and then on the kitchen screens, impregnated with DDT, and dies 4 hours later, has already 'fulfilled its mission' and may have transmitted intestinal pathogens from the latrine to the mess table. Its ultimate death following this sequence of events has little practical value. It would seem that although DDT alone will dramatically reduce the number of adult flies, it is yet to be proved that DDT alone is capable of reducing further the adult fly population below the critical level at which the transmission of intestinal pathogens can occur. The use of DDT in latrines and around garbage disposal areas augments the adult kill, but indiscriminate soil pollution by careless handling of garbage and improper maintenance of latrines are still the prime factors responsible for the presence of flies in the kitchen. An energetic and enthusiastic unit sanitary officer is worth more than his weight in DDT. These comments are not to be construed as a criticism of the unit in which this field trial of DDT for fly control was carried out but rather the opinions of an observer who feels that the enthusiastic publicity given DDT and the interest generated, perhaps by its scarcity, has obscured its proper role in the fly control program."

The above was quoted from the October monthly report of Lt. Fred M. Davenport. (The heading is ours)

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The following article is from the 403rd Medical Composite Unit (Malaria Survey) monthly report for September 1944.

Filariasis Survey of Bougainville and Buka Natives.

In the same population of natives serving as the subject of the malaria survey reported, microfilaria were demonstrated in smears from 26 individuals, or 6.5 percent of the total of 400 natives. Smears were taken between 1730 and 1830 o'clock. By age groups, there was a gradual increase in percentage of positive cases with the oldest natives being most heavily infected. There was no significant difference between male and female groups. A total of 7.1 percent of the Bougainville natives was positive for microfilaria while only 4.0 percent of the Buka natives were positive. A summary of results by age groups follows:

Age Group	No. Natives	Microfilaria	Percent
1 - 10	83	1	1.1
11 - 20	135	6	4.4
21 - 30	101	7	6.9
31 - 40	50	5	10.0
41 - 50	22	6	27.3
51 -	4	1	25.0
Totals	400	26	6.5

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## Schistosomiasis in Leyte, Philippine Islands

by

Captain M. S. Ferguson, Sn C  
5th Malaria Survey Unit

Before the war Schistosomiasis, due to S. japonicum, was known to be endemic in parts of Mindanao, Samar, Mindoro, Luzon and throughout the entire Leyte valley.

About four years ago a schistosomiasis survey was carried out in Leyte by the Bureau of Health, Manila and the disease was shown to be present in the following towns and their surrounding barrios: Palo, Pastrana, Sta Fe, Alangalang, San Miguel, Jaro, Lagana, Tanauan, Tolosa, Dulag, Burauen, and Abuyog. Schistosomiasis was not found along the western coast nor was the snail host collected there.

The snail host, Oncomelania hydrobiopsis is operculated and has a smooth shell, dark brown in color and varying in length from 4 to 9 millimeters. It occurs in ponds, brooks, canals and rice fields and is usually associated with decaying vegetation. Due to the amphibious habits of this snail it may be found just out of the water on moist mud or on partly submerged coconut shells, branches, leaves, reeds, etc. During the day it generally avoids direct sunlight and will be found in the water on the under or shaded sides of the above.

A stool survey is being conducted in the district of Palo and it appears that the disease is more prevalent there than in 1940. Numbers of infected snails have recently been collected in this area.

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The following article is from Lt. Walter L. Barksdale, SnC, of the Detachment, 19th Medical General Laboratory, 36th Evacuation Hospital.

Report on the First Hundred Cases Surveyed for Malaria and Microfilaria in the Area of Dulag, Palo and South of Tacloban

## Preliminary Data

1. All cases surveyed by the thick and thin film method showed no *Plasmodia*.
2. All cases surveyed showed no *Microfilaria*.
3. It is felt that the high percentage of positive spleens may be attributed to *Schistosoma* rather than to Malaria.
4. No Malarial vectors have as yet been reported from this area.
5. One case of benign tertian malaria in a civilian was diagnosed by this laboratory. The man in question, however, had been on Samar with the Guerillas until 25 September 1944. Malaria is known to occur on Samar.
6. Our surveys thus far tend to suggest that the major precautionary measures to be taken in this locality for the health of our soldiers should primarily have to do with dysentery, intestinal parasites, and blood flukes. Yet, more attention is given to seeing that men wear their shirts in the heat of the day than is given to preventing men from going barefoot in polluted soil and in the margins of streams. Considering the debilitating effect of the various nematodiasis, to say nothing of the invariable fatality of schistosomiasis, this indeed seems shortsighted.

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Summary of 103 spleen and blood studies for malaria on children under 14 years of age:

No positive bloods for plasmodia.	32 positive spleens.
28 increased eosinophilia.	19 marked increase in eosinophiles
15 with enlarged spleens had eosinophilia.	

Since many of the children have positive helminthic stools it is thought that this accounts for the high incidence of eosinophiles.

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EC Date 9 Aug 52  
C. Croft. Capt. MLC  
Security Officer